

NEW CLAIMS:

What is claimed is:

17. A security control apparatus for controlling a supply of a service to a user in a service area, comprising:

a monitor unit configured to continuously input images of the service area;

a recognition unit configured to recognize the user as an authorized user from the input images, and to recognize at least one person other than the authorized user from the input images; and

a service control unit configured to supply the service to the authorized user when the user is recognized in the input images, and to control the supply of the service to the authorized user when the person other than the authorized user is recognized in the input images.

18. The security control apparatus according to claim 17, wherein said service control unit interrupts the supply of the service when the user is not recognized in the input images.

19. The security control apparatus according to claim 17, wherein said service control unit interrupts the supply of the service when the person other than the authorized user is recognized in the input images.

20. The security control apparatus according to claim 17, wherein said service control unit decides whether work of the user for the service is completed when the user is not recognized in the input images.

21. The security control apparatus according to claim 20, wherein said service control unit finishes the supply of the service if the work of the user for the service is completed, interrupts the supply of the service if the work of the user for the service is not completed, and relieves an interruption of the supply of the service when the user is recognized in the input images again.

22. The security control apparatus according to claim 17, wherein said recognition unit recognizes the user by referring to a person comparison dictionary to recognize persons allowed to use the service.

23. The security control apparatus according to claim 17, wherein said recognition unit generates a person comparison dictionary to recognize an unspecified person allowed to use the service, and recognizes the unspecified person as the user by referring to the person comparison dictionary.

24. The security control apparatus according to claim 17, wherein said service control unit sends a warning to the user when the person other than the authorized user is recognized in the input images.

25. The security control apparatus according to claim 24, wherein said service control unit controls the supply of the service in accordance with an indication of the user being warned.

26. The security control apparatus according to claim 17, wherein said service control unit controls the supply of the service in accordance with a security degree preset to each kind of the service.

27. The security control apparatus according to claim 17, wherein said service control unit detects a movement of the visual line or a direction of the face of the user, and controls the supply of the service in accordance with the movement of the visual line or the direction of the face of the user.

28. The security control apparatus according to claim 17, wherein said service control unit detects a movement of the visual line or a direction of the face of the nonuser, and controls the supply of the service in accordance with the movement of the visual line or the direction of the face of the non-user.

29. A security control apparatus for controlling a supply of a service to a user in a service area, comprising:

a person recognition unit configured to recognize a user requesting the service;

a use situation decision unit configured to decide whether the user is under a situation to use the service in accordance with recognition result of said person recognition unit;

an intrusion situation decision unit configured to decide whether a non-user intrudes into the service area in accordance with recognition result of said person recognition unit; and

a service control unit configured to supply the service to the user when said person recognition unit recognizes the user, and to control a supply of the service when said use situation decision unit decides the user is not under the situation to use the service or when said intrusion situation decision unit decides the non-user intrudes into the service area.

30. The security control apparatus according to claim 29, wherein said service control unit interrupts the supply of the service when said use situation decision unit decides the user is not under a situation to use the service.

31. The security control apparatus according to claim 29, wherein said service control unit interrupts the supply of the service when said intrusion situation decision unit decides the non-user intrudes into the service area.

32. The security control apparatus according to claim 29, wherein said service control unit decides whether work of the user for the service is completed or not when said use situation decision unit decides the user is not under the situation to use the service.

33. The security control apparatus according to claim 32, wherein said service control unit finishes the supply of the service if the work of the user for the service is completed, interrupts the supply of the service if the work of the user for the service is not completed, and relieves an interruption of the supply of the service when said use situation decision unit decides the user is under the situation to use the service again.

34. The security control apparatus according to claim 33, wherein said service control unit finishes the supply of the service when said use situation decision unit decides the user is not under the situation to use the service within a predetermined time during the interruption of the supply of the service.

35. The security control apparatus according to claim 29, wherein said service control unit sends a warning to the user when said intrusion situation decision unit decides the non-user intrudes into the service area.

36. The security control apparatus according to claim 35, wherein said service control unit controls the supply of the service in accordance with an indication of the user being warned.

37. The security control apparatus according to claim 36, wherein said service control unit controls the supply of the service in accordance with predetermined control information in case of a non-response of the user within a predetermined time after warning of the intrusion.

38. A security method for controlling a supply of a service to a user in a service area, comprising the steps of:

continuously inputting images of the service area;
recognizing the user as an authorized user from the input images;
recognizing at least one person other than the authorized user from the input images;
supplying the service to the authorized user when the user is recognized in the input images; and
controlling the supply of the service to the authorized user when the person other than the authorized user is recognized in the input images.

39. A computer readable memory containing computer-readable instructions to control a supply of a service to a user in a service area, comprising:

an instruction unit to continuously input images of the service area;
an instruction unit to recognize the user as an authorized user from the input images;
an instruction unit to recognize at least one person other than the authorized user from the input images;
an instruction unit to supply the service to the authorized user when the user is recognized in the input images; and
an instruction unit to control the supply of the service to the authorized user when the person other than the authorized user is recognized in the input images.

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(shown in FIGS. 3-6, 8-10, 12, 14, 16) and necessary information may be stored in a memory device as shown in FIG. 17. In this case, it is possible that the memory device is applied for each apparatus or content of the memory device is transmitted to each apparatus by a communication device.

A memory can be used to store instructions for performing the process described above, such a memory can be a CD-ROM, floppy disk, hard disk, magnetic tape, semiconductor memory, and so on.

Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with the true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

1. A security apparatus for a device supplying a service to a user in a service use area surrounding the user, comprising:
 - image input means for continuously inputting an image to monitor the service use area;
 - person discrimination means for continuously recognizing a person in the input image, and for registering the person as a user allowed to use the service if the person is recognized as an authorized user;
 - use situation decision means for deciding that the user is not under a situation to use the service in case the user is not recognized in the input image;
 - infringement situation decision means for deciding that a security of the service use area is infringed in case at least one person other than the authorized user is recognized in the input image; and
 - service control means for supplying the service to the authorized user and for controlling a supply of the service if said use situation decision means decides that the user is not under the situation to use the service or if said infringement situation decision means decides that the security of the service use area is infringed.
2. The security apparatus according to claim 1, wherein said service control means finishes the supply of the service in case said use situation decision means decides the user is not under the situation to use the service.
3. The security apparatus according to claim 1, wherein said service control means interrupts the supply of the service until the infringement situation is relieved in case said infringement situation decision means decides the security of the service is infringed.
4. The security apparatus according to claim 1, wherein said service control means decides whether work of the user for the service is completed or not in case said use situation decision means decides the user is not under the situation to use the service.
5. The security apparatus according to claim 4, wherein said service control means finishes the supply of the service in case the work of the user for the service is completed, interrupts the supply of the service in case the work of the user for the service is not completed, and relieves an interruption of the supply of the service in case said use situation decision means decides the user is under the situation to use the service again.
6. The security apparatus according to claim 1, wherein said person discrimination means recognizes the user by referring to a person comparison dictionary to recognize persons allowed to use the service.

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7. The security apparatus according to claim 1, wherein said person discrimination means generates a person comparison dictionary to recognize unspecified users allowed to use the service, and recognizes the unspecified person by referring to the person comparison dictionary while the unspecified person is a user.
8. The security apparatus according to claim 1, wherein said service control means sends a warning to the user when said infringement situation decision means decides the security of the service is infringed.
9. The security apparatus according to claim 8, wherein said service control means controls the supply of the service in accordance with an indication of the user being warned.
10. The security apparatus according to claim 1, wherein said service control means controls the supply of the service in accordance with security degrees preset to a unit of the service or information for the service.
11. The security apparatus according to claim 1, wherein said service control means detects movement of the visual line or a direction of the face of the user and controls the supply of the service in accordance with the movement of the visual line or the direction of the face of the user.
12. The security apparatus according to claim 1, wherein said service control means detects movement of the visual line or a direction of the face of the non-user and controls the supply of the service in accordance with the movement of the visual line or the direction of the face of the non-user.
13. A security apparatus for a device supplying a service to a user, comprising:
 - person discrimination means for recognizing a user requesting the service;
 - use situation decision means for deciding whether the user is under a situation to use the service;
 - infringement situation decision means for detecting whether a non-user intrudes into a use area of the service to decide whether the service is infringed; and
 - service control means for supplying the service to the user in case said person discrimination means recognizes the user, and for controlling a supply of the service if said use situation decision means decides the user is not under the situation to use the service or if said infringement situation decision means decides that the security of the service is infringed,
- wherein said service control means decides whether work of the user for the service is completed or not in case said use situation decision means decides the user is not under the situation to use the service,
- wherein said service control means finishes the supply of the service in case the work of the user for the service is completed, interrupts the supply of the service in case the work of the user for the service is not completed, and relieves an interruption of the supply of the service in case said use situation decision means decides the user is under the situation to use the service again, and
- wherein said service control means finishes the supply of the service in case said use situation decision means decides the user is not under the situation to use the service within a predetermined time during the interruption of the supply of the service.
14. A security apparatus for a device supplying a service to a user, comprising:
 - person discrimination means for recognizing a user requesting the service;

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use situation decision means for deciding whether the user is under a situation to use the service;

infringement situation decision means for detecting whether a non-user intrudes into a use area of the service to decide whether the service is infringed; and

service control means for supplying the service to the user in case said person discrimination means recognizes the user, and for controlling a supply of the service if said use situation decision means decides the user is not under the situation to use the service or if said infringement situation decision means decides that the security of the service is infringed.

wherein said service control means sends a warning to the user when said infringement situation decision means decides the security of the service is infringed.

wherein said service control means controls the supply of the service in accordance with an indication of the user being warned, and

wherein said service control means controls the supply of the service in accordance with predetermined control information in case of a non-response of the user within a predetermined time after warning of the infringement.

15. A security method associated with supplying a service to a user in a service use area surrounding the user, comprising the steps of:

continuously inputting an image to monitor the service use area;

continuously recognizing a person in the input image;

registering the person as a user allowed to use the service
if the person is recognized as an authorized user;

supplying the service to the authorized user;

deciding that the user is not under a situation to use the service in case the user is not recognized in the input image; 35

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deciding that a security of the service use area is infringed in case at least one person other than the authorized user is recognized in the input image; and

controlling the supply of the service if the user is not under the situation to use the service or if the security of the service use area is infringed.

16. A computer readable memory containing computer-readable instructions to supply a service to a user in a service use area surrounding the user, comprising:

instruction means for causing a computer to continuously input an image to monitor the service use area;

instruction means for causing a computer to continuously recognize a person in the input image;

instruction means for causing a computer to register the person as a user allowed to use the service if the person is recognized as an authorized user;

instruction means for causing a computer to supply the service to the authorized user;

instruction means for causing a computer to decide that the user is not under a situation to use the service in case the user is not recognized in the input image;

instruction means for causing a computer to decide that a security of the service use area is infringed in case at least one person other than the authorized user is recognized in the input image; and

instruction means for causing a computer to control a supply of the service if the user is not under the situation to use the service or if the security of the service use area is infringed.

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